

REMARKS

Claims 32, 35 and 38 have been cancelled.

Claim 16 has been amended to delete the phrase “and further comprises silver and/or palladium”. This phrase was added in the Amendment and Request for Reconsideration filed July 9, 2007, as this had been indicated as allowable subject matter over the previously cited references Nam et al. (“Preparation and characterization of TiO₂ fiber and its photocatalytic properties”, Paper # 291) and Kim et al. (“Preparation of TiO₂ Fiber and its Photocatalytic Properties”, Materials Science Forum, vol. 439, pp. 271-276 (2003). Claim 16 also has been amended to recite that, when the ceramic comprises titanium, the fiber does not consist of TiO₂. This amendment is supported by the specification at least at page 10, line 7 through page 12, line 11. In these examples, glass fibers were coated with TiO₂, TiON, TiOS, Ag-TiON or Pd-TiON. Applicants believe that this amendment distinguishes claim 16 from Nam et al. and Kim et al., as these references disclose only TiO₂ fibers (see abstracts).

Claims 16 and 28 have been amended to recite that the ceramic has a BET surface area of at least 200 m²/g. Claims 19, 29, 33, 34, 36 and 37 have been amended to recite a lower limit of 200 m²/g for the BET surface area of the ceramic. These amendments are supported by the specification, at least at page 10, lines 16-17; at page 11, lines 1-2; at page 15, lines 1-4 and 25-27; and at Figures 6-8.

New claims 43-45 have been added. New claim 43 corresponds to claim 21, which was cancelled in the Amendment and Request for Reconsideration filed July 9, 2007. New claims 44 and 45 are supported by the specification, at least at page 10, lines 16-17; at page 15, lines 1-4; and at Figures 6 and 7.

No new matter has been added.

Claims 16-19, 28-31, 33, 34, 36, 37 and 39-45 are present in the application, and claims 16-19, 28-31, 33, 34, 36, 37, 39 and 43-45 are active.

Rejection under 35 U.S.C. § 102

The rejections of the claims as anticipated by U.S. Patent No. 3,956,185 to Yagi et al. (Yagi) has been obviated by appropriate amendment. Independent claims 16 and 28 have been amended to recite that the ceramic has a BET surface area of at least 200 m²/g. In contrast, Yagi discloses coated fibers having specific surface areas only up to 120 m²/g.

Yagi discloses silica fibers coated with a porous layer, such that the coated fibers have a larger surface area than their corresponding uncoated fibers (col. 3, lines 8-10). In Examples 1-6, glass fibers were treated to have a silica layer, and then a layer of alumina, zirconia or magnesia on the silica layer. A platinum catalyst was then applied to the fibers of each example (col. 3, line 34 – col. 4, line 68). As listed in the Table of columns 5 and 6, the specific surface areas of these fibers prior to their subjection to a heat resistance test ranged from 90 m²/g (Example 4) to 120 m²/g (Example 1).

Independent claims 16 and 28, as amended, recite that a ceramic coated on a fiber has a BET surface area of at least 200 m²/g. Yagi does not disclose or suggest a ceramic coated on a fiber, where the ceramic has a BET surface area of at least 200 m²/g. Accordingly, the claims are not anticipated by, nor obvious over, Yagi. Applicants respectfully request that this rejection be withdrawn.

Rejection under 35 U.S.C. § 103

The rejections of the claims as obvious under 35 U.S.C. § 103(a) over U.S. Patent Application Publication No. 2005/0164876 A1 to Lee et al. (Lee) in combination with Yagi have been obviated by appropriate amendment. Independent claims 16 and 28 have been amended to recite that the ceramic has a BET surface area of at least 200 m²/g. In contrast, Lee discloses fibers coated with titanium oxide having specific surface areas only up to 96 m²/g, and Yagi discloses coated fibers having specific surface areas only up to 120 m²/g.

Lee discloses photocatalysts prepared from a mixture of a titanium alkoxide, an alcohol, a binder and an acid catalyst (p. 1, paragraph 0019). The mixture can be immobilized on a glass fiber prior to formation of the photocatalyst (p. 2, para. 0030).

The BET surface area of the resulting photocatalyst was $96 \text{ m}^2/\text{g}$ (p. 3, para. 0040). This surface area was greater than that of a commercial TiO_2 coated on a glass fiber filter (p. 2, para. 0029 and p. 3, para. 0040), and was greater than a photocatalyst prepared from a similar mixture but without a binder (p. 3, para. 0044).

As noted above, Yagi discloses silica fibers coated with a porous layer of alumina, zirconia or magnesia. The specific surface areas of these fibers were from $90 \text{ m}^2/\text{g}$ to $120 \text{ m}^2/\text{g}$.


Independent claims 16 and 28, as amended, recite that a ceramic coated on a fiber has a BET surface area of at least $200 \text{ m}^2/\text{g}$. Lee and Yagi, alone or in combination, do not disclose or suggest a ceramic coated on a fiber, where the ceramic has a BET surface area of at least $200 \text{ m}^2/\text{g}$. Accordingly, the claims are not obvious over the applied references. Applicants respectfully request that these rejections be withdrawn.

CONCLUSION

All of the grounds raised in the present Office Action for rejecting the application are believed to be overcome or rendered moot based on the remarks above. Thus, it is respectfully submitted that all of the presently presented claims are in form for allowance, and such action is requested. Should the Examiner feel a discussion would expedite the prosecution of this application, the Examiner is kindly invited to contact the undersigned at (312) 876-1400.

Respectfully submitted,

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